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| 10/741,308 | 12/19/2003 | Amro Albanna | QMOT.003A | 4355 |
| 20995 7590 01/11/2008 KNOBBE MARTENS OLSON & BEAR LLP 2040 MAIN STREET FOURTEENTH FLOOR IRVINE, CA 92614 | | | EXAMINER HOEL, MATTHEW D | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/741,308

Applicant(s)

ALBANNA ET AL.

Examiner

Matthew D. Hoel

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05/02/2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-64 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-64 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 10/26/07.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

1. Claims 1, 5-10, 15-17, 36-38, 43-48, 51, 53-58, 60, 61 and 63-67 are rejected under 35 U.S.C. 103(a) as being obvious over Matsuyama et al., U.S. Patent No. 6,767,282 B2 in view of Geen, et al. (U.S. patent 4,764,748 A) and Kim (U.S. patent 5,694,340 A). Matsuyama discloses a system and method for use with a computer application configured to respond to first input device data from a first input device. The first input device has a first format (See Matsuyama Figs. 1, 2; col. 10 lines 9-15). For example the first input device are the buttons on the gaming machine and have a digital format. A second input device, different than the first input device includes one or more

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sensors configured to measure movement of an object in one or more directions and creates second input device data representative of the movement of the object. The second input device data has a second format different than the first format (See Matsuyama Figs. 1, 3, 4; col. 10 lines 15-50). A processor is configured to convert the second input device data into simulated first input device data. The simulated first input device data has the first format, the processor is further configured to provide the simulated first input device data to the computer application, thereby simulating the first input device with the second input device (See Matsuyama col. 45-50) [claims 1, 20, 36, 46, 56, 65]. For example, the golf club input device data is analog and has to be converted to digital data. The computer application is a video game (See Matsuyama abstract) [claims 5, 23, 41, 51, 67]. The first input device is one of the following devices: a mouse, a joystick, or a keyboard, and the first input device is mouse controller input data, joystick controller input data, or keyboard input data (See Matsuyama Fig. 2; col. 10 lines 9-15) [claims 6, 66]. The object is a golf club and the second input device is attached to the golf club (See Matsuyama Fig. 2; col. 11 lines 53-67) [claims 7, 25, 43, 53, 60]. The object can also be a system user's arm and the second input device is attached to the system user's arm (See Matsuyama Fig. 2) [claims 8, 26]. For example, the player holds the club with his hand, which is attached to his arm. The one or more sensors are accelerometers and are configured to measure the acceleration and angle of the object in one or more directions and the second input device data is representative of the acceleration and angle of the object (See Matsuyama Fig. 1; col. 3 lines 51-61) [claims 9, 27, 37]. The acceleration of the object is measured directly from

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the one or more accelerometers and the angle of the object is computed by the sensor firmware (See Matsuyama col. 2 lines 20-23) [claims 10, 28, 38, 47, 48, 58]. Driver software is configured to convert the second input device data into simulated first input device data (See Matsuyama Fig. 1; col. 10 lines 45-50) [claim 15]. The one or more sensors indicate multiple potential positions and directions of the object at a given time and the processor determines in which of the multiple potential positions and directions the object is located (See Matsuyama Figs. 6 & 7; col. 10 lines 15-50) [claim 16, 33, 44, 47, 54, 63]. The object is a golf club and the multiple potential positions include potential locations of the golf club in multiple quadrants of 90 degrees (See Matsuyama Figs. 6 & 7; col. 10 lines 15-50) [claims 17, 34, 45, 55, 65]. Measuring the acceleration angle of the object in one or more directions includes creating an electronic signal representative of the acceleration and angle of the object (See Matsuyama col. 10 lines 15-50) [claim 58]. Data is received from the computer application (See Matsuyama Fig. 13) [claim 61]. A computer readable medium comprises code to configure a processor to perform the aforementioned limitations (See Matsuyama col. 9 lines 44-50) [claim 66]. In another reasonable interpretation of Matsuyama, the first input device is the virtual golf club (Col. 2, Lines 32 to 50; Col. 3, Lines 3 to 13; Col. 5, Lines 7 to 13; Col. 6, Lines 28 to Col. 7, Line 4), substituted by the real input device. The virtual first input device has positions and angles in virtual space, constituting first input device data in a first format (Col. 5, Lines 7 to 14). The second input device data in a second data format (measured angles and accelerations, Col. 10, Lines 36 to 40). The second input device data are converted into the first input device data format (Steps 3-1-1 and 3-1-2,

Col. 12-14, Figs. 6 and 7). The examiner also notes that the claims do not require the first input device to actually measure movement, so this interpretation of the claims for the first input device being a virtual one is a fair rejection of the independent claims.

Regarding the new limitations of Claims 1, 36, 46, 56, and 65: '748, however, discloses a first format with a first range of values and a second format with a second range of values different than the first, along with a conversion factor selected to correlate the first and second formats and ranges of values whereby the second range of values is converted into the first range of values (11-bit ADC, 2:58-64; amplifier 6 which would inherently have a gain as there is a feedback resistor 8 in the circuit, Fig. 1; ADC has range of values, 8:13-63, especially 8:13-24 & 8:57-63). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have applied the ranges and formats of '748 to the gaming system of Matsuyama ('282). '282 in Fig. 1 teaches an input device containing an accelerometer with an output signal running into ADC 71. The 11-bit ADC of '748 would have the effect and advantage of allowing the input device of '748 to accurately model the golf player's simulated swing as 11 bits offers high resolution (2^{11} possible positions). Kim, however, in '340 teaches plural accelerometers used in a golf club for training purposes (Abst.; Figs. 1 & 2); the acceleration is measured at time intervals (7:40-50, 8:38-49) to determine the motion or trajectory of the golf swing as well as the trajectory of the golf club (Abst.). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have applied the accelerometers of '340 to the simulated golf clubs and tennis rackets of Matsuyama ('282). Some motivation for this can be found in the gaming art

as Goschy, et al. in U.S. patent 6,545,661 B1 teach a game controller including accelerometers for accurate measurement (Abst.), which can be use to simulate virtual clubs or rackets (6:42-44). The added measurements would have the effect and advantage of making the detected swing and calculated trajectory of the ball after impact much more accurate than otherwise. The examiner notes that the applicants do not appear to be claiming conversion of data from one format to another in the sense described in the last interview. Upon updating the search, the examiner found the X-Arcade manual, dated 2002; this game controller is arcade-style using heavy-duty joysticks and buttons found on typical arcade games. The controls are mapped to keyboard inputs (up, down, right, left, mapped to corresponding cursor keys, etc.). The controller plugs into the keyboard port of a PC (Pages 6, 7, & 9). Namba, et al. in U.S. patent 6,494,783 B2 teach using a mouse to control a bat in a baseball video game (Abst.). Takahashi in U.S. pre-grant publication 2003/0017863 A1 teach using a keyboard to control a bat in a baseball video game (Para. 76), so there appears to be sufficient motivation in the prior art to use accelerometer-driven controllers mapped to keyboard or mouse inputs to drive virtual bats, rackets, and so forth.

2. **Claims 42, 52 and 62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuyama and Geen.** Matsuyama lacks in specifically disclosing a mouse controller. It would have been obvious to one of ordinary skill in the art to have the first input device data be mouse controller input data where the mouse controller input data is not representative of the movement of the object and wherein the

replicated first input device data is replicated mouse controller data representative of the movement of the object [claims 24, 42, 52, 62]. The use of a mouse as an input device in video games is common. Therefore one could have used a mouse in the invention of Matsuyama to substitute for the buttons. At the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to use a mouse in the invention of Matsuyama because Applicant has not disclosed that a mouse provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Matsuyama's game and applicant's invention to perform equally well with buttons or a mouse because both mice and buttons are selection devices. Therefore, it would have been prima facie obvious to modify Matsuyama to obtain the invention specified because such a modification would have been considered a mere design consideration, which fails to patentably distinguish over the prior art of Matsuyama.

3. Claims 2-4, 11, 12, 20-30, 33 and 34 rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuyama and Geen in view of Woolston, U.S. Patent No.

6,162,123. Matsuyama and Geen disclose all of the limitations mentioned above.

Matsuyama and Geen lack in disclosing a transmitter or transceiver. Woolston discloses a wireless input device for a video game. The input device has a transmitter configured to communicate second input device data to a processor (See Woolston Fig. 10; col. 3 lines 55-67) [claims 2, 20]. The device also has a receiver configured to allow for two-way communication of data between the second input device and the processor (See Woolston col. 3 lines 55-67) [claims 3, 12, 21, 30]. It would have been obvious to

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one of ordinary skill in the art at the time the invention was made to use a transceiver instead of a transmitter and a separate receiver. Transceivers are well known throughout the art and provide dual roles as both a transmitter and receiver. Sensor firmware is configured to recognize that data is being sent from the processor to the second input device (See Woolston col. 2 lines 35-54) [claims 4, 22]. It would have been obvious to one of ordinary skill in the art to use a transceiver in the invention of Matsuyama. By having a wireless input device, the player is not restricted as much in their movement. Furthermore, data can be sent back to the input device so that the player feels tactile feedback, which provides a more realistic gaming experience. The second input device sends calibration data for the accelerometers to the processor to facilitate calculation of the angle of the object (See Matsuyama col. 11 lines 61-67; col. 12 lines 1-7) [claims 11, 12, 29, 30]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to send calibration data to the processor so that it can properly calculate the angle of the object. Without calibration data, the calculations would have no reference point and the calculated values would not accurately represent the movements of the input device. The new limitations of Claim 20 are considered obvious for the reasons outlined in the rejections of Claims 1, 36, 46, 56, and 65 above.

4. **Claims 13, 14, 31, 32, 39, 40, 49, 50 and 59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuyama and Geen in view of Yasue et al., U.S. Patent No. 6,189,053 B1.** Matsuyama and Geen lack in disclosing assembling the data into data frames. Yasue et al. teaches of a processor configured to assemble data

into data frames to communicate to the processor (See Yasue col. 6 lines 51-60) [claims 13, 31, 39]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a sensor processor configured to assemble the second input device data into data frames to communicate to the processor configured to convert the second input device data where each data frame includes acceleration and angle measurements for the object in Matsuyama [claims 14, 32, 40, 49, 50, 59]. The use of data frames to organize data is well known throughout the art. The data frames provide organization to the data and make it easier to use.

5. Claims 18 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuyama and Geen in view of Childs et al., U.S. Patent No. 5,623,545.

Matsuyama and Geen lack in disclosing dividing up the data into smaller portions. Childs et al. discloses software that is configured to receive a certain amount of data at a given time and the processor divides the data into multiple smaller portions to provide to the computer application (See Childs col. 3 lines 53-49) [claims 18, 35]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to divide the data into smaller portions before providing it to the computer application. Smaller portions of data are easier to use and dividing data into small portions is well known throughout the art.

6. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuyama and Geen in view of Lum et al., U.S. Patent Application Publication No. 2004/0224763 A1. Matsuyama and Geen lack in disclosing the processor having two modes. Lum et al. teaches of a processor that has a first and a second mode. In

the first mode a first movement results in a first simulated input resulting in a first movement of a game character. In the second mode the first movement results in a second simulated input resulting in a second movement of the game character (See Lam ¶¶0007-¶¶0010) [claim 19]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the processor in Matsuyama have two modes for game character movement. By having two modes the processor can process data in two different formats, thereby, allowing controllers with different formats to be used to play the game machine. Consequently, a player can use the controller in which they prefer for game play.

Response to Arguments

7. Applicant's arguments with respect to claims 1-64 have been considered but are moot in view of the new ground(s) of rejection. Kim in '340 teaches plural accelerometers used in a golf club for training purposes (Abst.; Figs. 1 & 2); the acceleration is measured at time intervals (7:40-50, 8:38-49) to determine the motion or trajectory of the golf swing as well as the trajectory of the golf club (Abst.). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have applied the accelerometers of '340 to the simulated golf clubs and tennis rackets of Matsuyama ('282). Some motivation for this can be found in the gaming art as Goschy, et al. in U.S. patent 6,545,661 B1 teach a game controller including accelerometers for accurate measurement (Abst.), which can be use to simulate virtual clubs or rackets (6:42-44). The added measurements would have the effect and

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advantage of making the detected swing and calculated trajectory of the ball after impact much more accurate than otherwise. The examiner notes that the applicants do not appear to be claiming conversion of data from one format to another in the sense described in the last interview. Upon updating the search, the examiner found the X-Arcade manual, dated 2002; this game controller is arcade-style using heavy-duty joysticks and buttons found on typical arcade games. The controls are mapped to keyboard inputs (up, down, right, left, mapped to corresponding cursor keys, etc.). The controller plugs into the keyboard port of a PC (Pages 6, 7, & 9). Namba, et al. in U.S. patent 6,494,783 B2 teach using a mouse to control a bat in a baseball video game (Abst.). Takahashi in U.S. pre-grant publication 2003/0017863 A1 teach using a keyboard to control a bat in a baseball video game (Para. 76), so there appears to be sufficient motivation in the prior art to use accelerometer-driven controllers mapped to keyboard or mouse inputs to drive virtual bats, rackets, and so forth. This would allow accelerometer-driven gaming controllers to be used with PC-based sports games by simply plugging into the keyboard or mouse ports without the need for special device drivers or installation. The gaming controllers would most likely use PS/2 (mini DIN 6) connectors. An alternative would be to use USB. The examiner respectfully disagrees with the applicants as to the claims' condition for allowance.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew D. Hoel whose telephone number is (571) 272-5961. The examiner can normally be reached on Mon. to Fri., 8:00 A.M. to 4:30 P.M.

9. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert E. Pezzuto can be reached on (571) 272-6996. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

10. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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